

WHAT IS CLAIMED IS:

- Sub A1
1. An implant comprising
an elongated member having a pair of ends wherein one of
said pair of ends includes a thin elongated lip, said thin
elongated lip being located on said elongated member to position
the thin elongated tip in a generally anterior direction upon
insertion in to a punctum opening, said elongated member being
formed of a dimension to pass through a punctum opening of an
eye.
 2. The implant of claim 2 wherein said elongated member
has an elongated axis and wherein said thin elongated lip has
posterior edge and central axis wherein said control axis
positioned anterior to the elongated axis of said elongated
member positions the posterior edge away from the cornea.
 3. The implant of claim 1 wherein said elongated member
has an elongated axis and wherein said thin elongated lip has a
central axis and its posterior edge removed forming a central
edge and wherein said central axis is co-axial and aligned with
the elongated axis of said elongated member to position the
central edges away from the corona.
 4. The implant of claim 2 wherein said one of said pair of
ends of said elongated member is curved anteriorly relative to
the thin elongated lip.

Sub A2 5. An implant comprising
an elongated member having a pair of ends wherein one of
said pair of ends includes a lip and wherein said elongated
member has a portion curved anteriorly relative to said lip, said
lip being located on said elongated member to be positioned
adjacent to said curved portion and in a generally anterior
direction upon insertion into a punctum opening, said elongated
member being formed of a dimension to pass through a punctum
opening of an eye.

6. An implant comprising
an elongated member having a pair of ends wherein one of
said pair of ends includes a collapsible flared section having an
outer surface and the other of said pair of ends includes a thin
retaining lip, said elongated member and said collapsible flared
section being formed of a dimension to pass through a punctum
opening of an eye.

7. The implant of claim 6 wherein the elongated member
curves slightly in a direction towards said other of said pair of
ends.

Sub A3 8. The implant of claim 6 wherein said elongated member
has a central axis and wherein said collapsible flared section is
collapsible relative to said central axis in response to the
application of a force on the collapsible flared section in a
direction to collapse the same and urge the collapsible flared
section into a collapsed position.

9. The implant of claim 6 having a fluid control opening extending therethrough to pass lacrimal fluid.

10. The implant of claim 9 wherein said fluid control opening is selected to have a predetermined diameter to control the flow of lacrimal fluid passed therethrough.

11. The implant of claim 10 wherein said fluid control opening has a diameter in the range of about .10 mm to about .40 mm.

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12. A punctum plug comprising
an elongated central member having a central axis and a pair of ends wherein one of said pair of ends includes means defining a collapsible flared section terminating in a starting tip which is capable of dilating a punctum opening by urging the same into a substantially oval shape and wherein said collapsible flared section is capable of being collapsed relative to said central axis in response to the application of force on the collapsible flared section in a direction to collapse the same and the other of said pair of ends includes a thin retaining lip, said elongated central member and said collapsible flared section being formed of a dimension to pass through a punctum of an eye.

13. The implant of claim 12 wherein said starting tip includes a tip insert section having predetermined cross-sectional dimension and wherein the tip insert section has an offset distal starting tip which is smaller in cross-sectional dimension than said tip insert section.

14. The implant of claim 12 wherein said tip insert section has a sloped surface.

15. The implant of claim 12 wherein said collapsible flared section has an initial cross-sectional dimension at said second end which is substantially equal to said predetermined cross-sectional dimension and which increases in cross-sectional dimension as said collapsible flared section extends towards said first end.

16. The implant of claim 15 wherein said collapsible flared section terminates in an outer edge.

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17. The implant of claim 16 wherein said collapsible flared section and outer edge are elliptically shaped and said collapsible flared section is responsive to a force applied in direction to collapse the same to urge the collapsible flared section into a collapsed position.

18. An implant comprising
an elongated member having a pair of ends wherein one of said pair of ends includes a shaped distal tip forming a starter tip having an outer surface and the other of said pair of ends includes a thin elongated lip, said thin elongated lip being located on said elongated member to position the thin elongated tip in a generally anterior direction upon insertion in to a punctum opening, said elongated member and said shaped distal tip being formed of a dimension to pass through a punctum opening of an eye.

19. The implant of claim 18 wherein said shaped distal tip is in the form of a collapsible flared section located between the starting tip and said thin elongated lip.

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20. An implant comprising
an elongated member having a pair of ends wherein one of said pair of ends terminates in a tip insertion section having a distal starting tip having a cross-sectional dimension that penetrates a punctal opening defined by a fibrous tissue and wherein said distal starting tip has a selected length to pass through the punctal opening to enable the tip insertion section to gently expand to a generally oval shape the sphincter muscle defining the punctum opening.

21. A punctum plug comprising
an elongated member having a central axis, first end, a second end and a central section extending between said first end and said second end;

said elongated member having a slight angular curve which deflects said first end in a selected angle from said second end, said first end having a thin retaining lip; and

said second end having said starting tip includes a tip insert section having predetermined cross-sectional dimension and wherein the tip insert section has an offset distal starting tip which is smaller in cross-sectional dimension than said tip insert section.

22. The implant of claim 21 wherein the second end terminates in a tip insertion section having a distal starting tip.

23. The implant of claim 22 wherein the diameter of the distal starting tip is about .2 mm to about .4 mm.

24. The implant of claim 21 wherein the diameter of the distal starting tip is about .3 mm.

25. The implant of claim 24 wherein the implant is formed of a biodegradable material.

26. The implant of claim 21 wherein the biodegradable material is a collagen material.

27. The implant of claim 21 wherein the implant is formed of a non-biodegradable material.

28. The implant of claim 21 wherein the non-biodegradable material is a silicone material.

29. An implant adapted to be inserted into the punctum opening of an eye and be transported into the horizontal portion of the canaliculus including the horizontal sac to occlude the punctum opening, said implant comprising
an elongated member having a first end and a spaced, opposed second end and a central member having a predetermined cross-sectional dimension extending from said first end to said second end;

said first end having a said starting tip includes a tip insert section having predetermined cross-sectional dimension and

Subaru wherein the tip insert section has an offset distal starting tip which is smaller in cross-sectional dimension than said tip insert section; and

said second end including a thin elongated lip which is located on said elongated member to position the thin elongated tip in a generally anterior direction upon insertion in to a punctum opening and which is adapted to engage the punctum opening.

30. The implant of claim 29 wherein the elongated member has a slightly angular curve in a selected direction causing the second end to be slightly deflected relative to the first end for urging the lip into holding engagement with the punctum opening.

31. A method for treating an external eye condition due to a deficiency of tears including the steps of

testing the eye to determine if a tear deficiency exists; and

if a tear deficiency is determined to exist, inserting into the punctum opening an implant having an elongated central member and a pair of ends wherein one end of said pair of ends has a starting tip and wherein said starting tip includes a tip insert section having predetermined cross-sectional dimension and has an offset distal starting tip which is smaller in cross-sectional dimension than said tip insert section and the other of said pair of ends has a thin retaining lip thin elongated lip being located on said elongated member to position the thin elongated

Subaru tip in a generally anterior direction upon insertion in to a punctum opening wherein the starting tip dilates and passes through the punctum opening and into the canaliculi interior of an eye to occlude the punctum opening and the vertical portion of the canaliculus.

32. The method of claim 31 further comprising the step of positioning the lip over the punctum opening to hold the implant in place between the punctum opening and the ampula.

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External Retaining Member
Concentric
Of set

Central Elongated Member
① Circular
② Oval

Internal Retaining Member

STARTING TIP - 45° nasally
90° nasally
direct